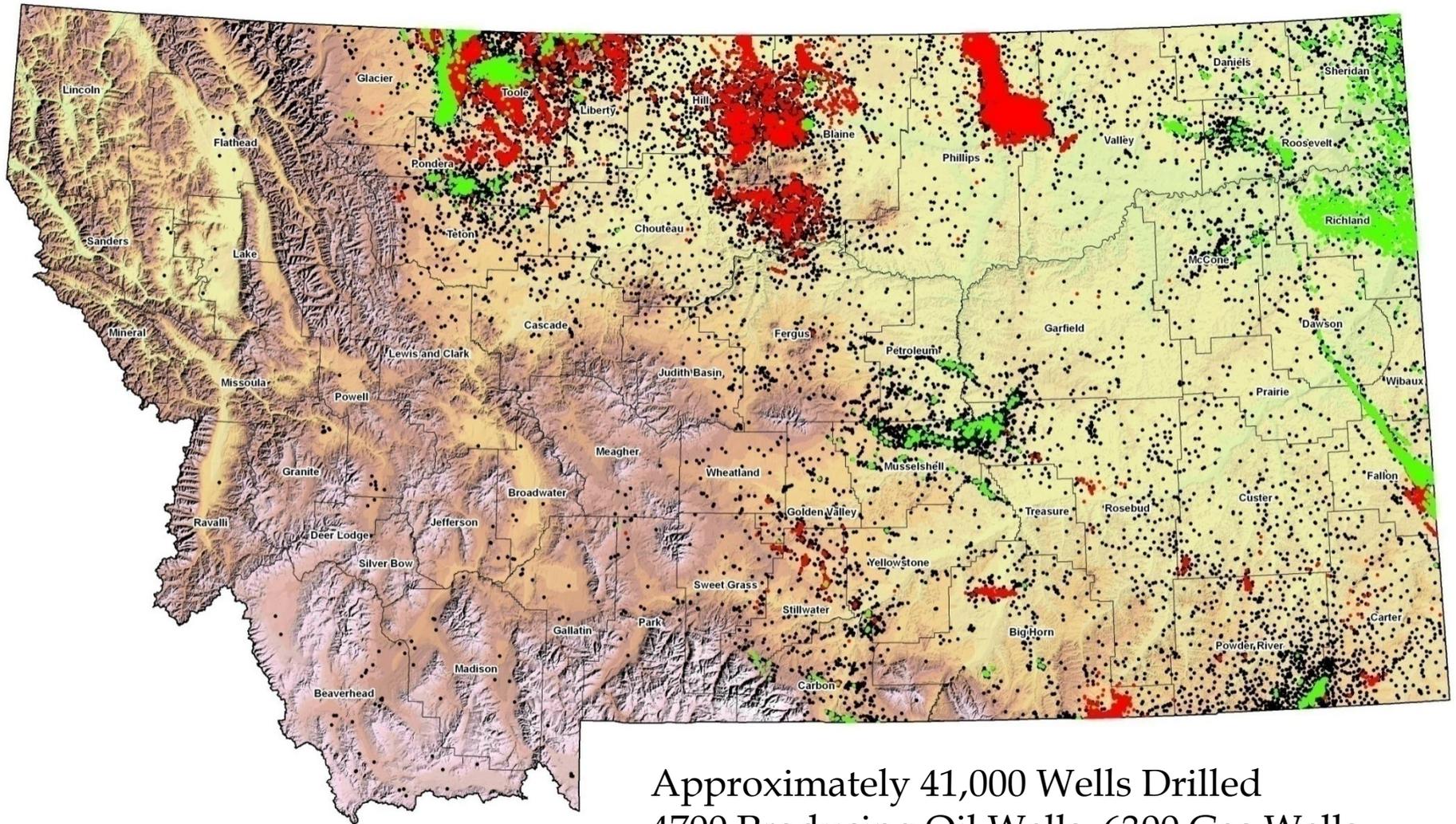


# 2013 Montana Update

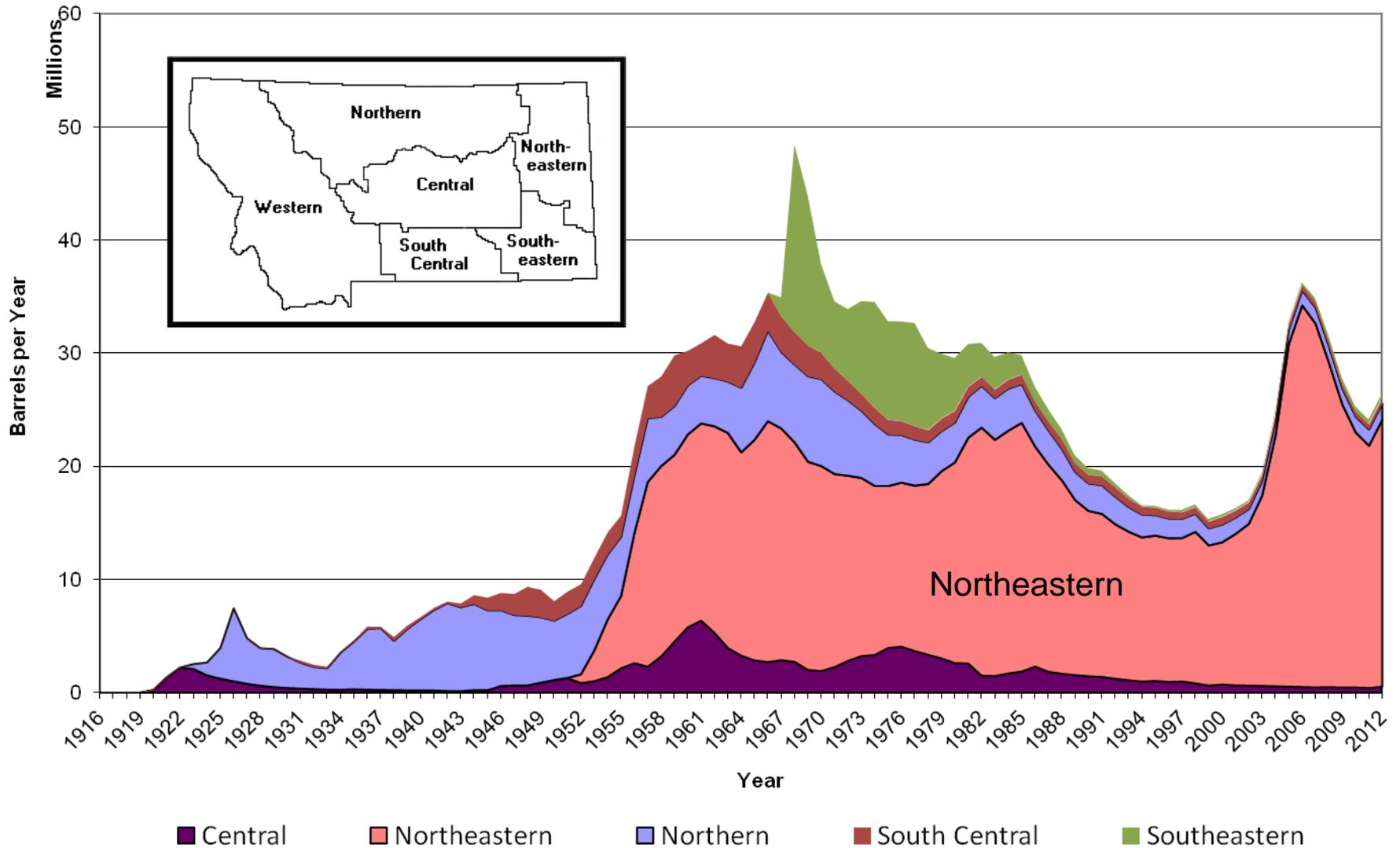


# Montana Oil and Gas Activity

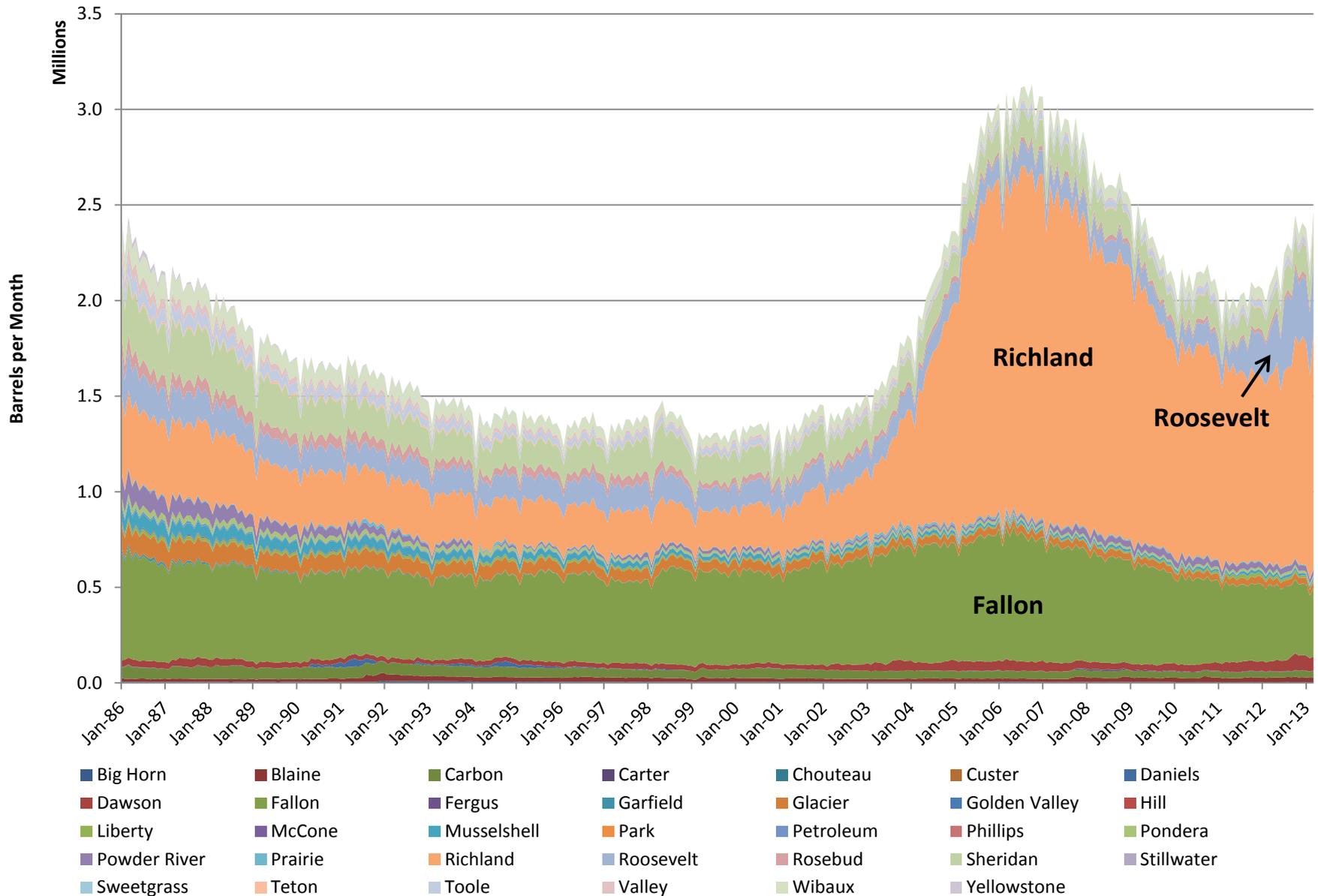


Approximately 41,000 Wells Drilled  
4700 Producing Oil Wells, 6300 Gas Wells

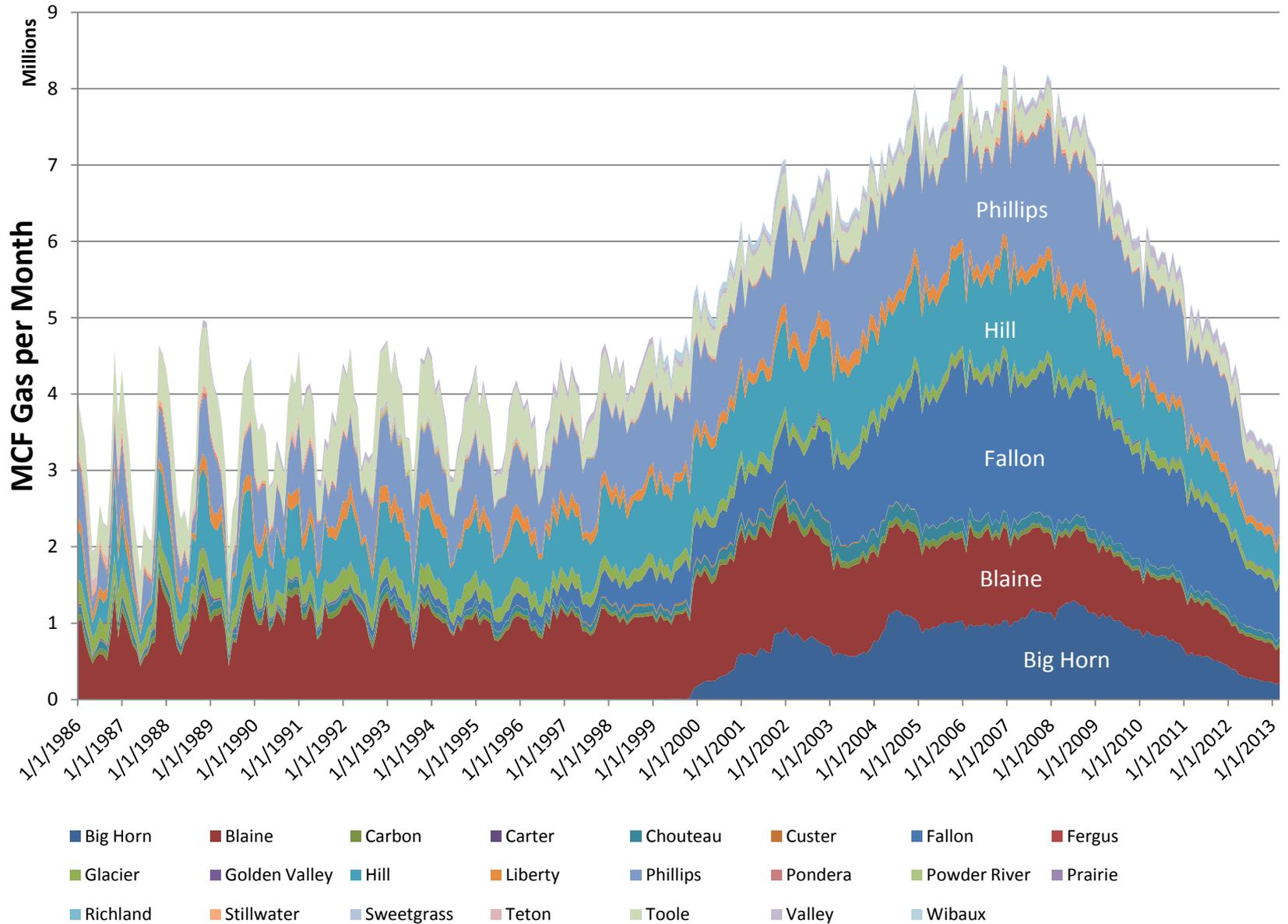
# Historical Production



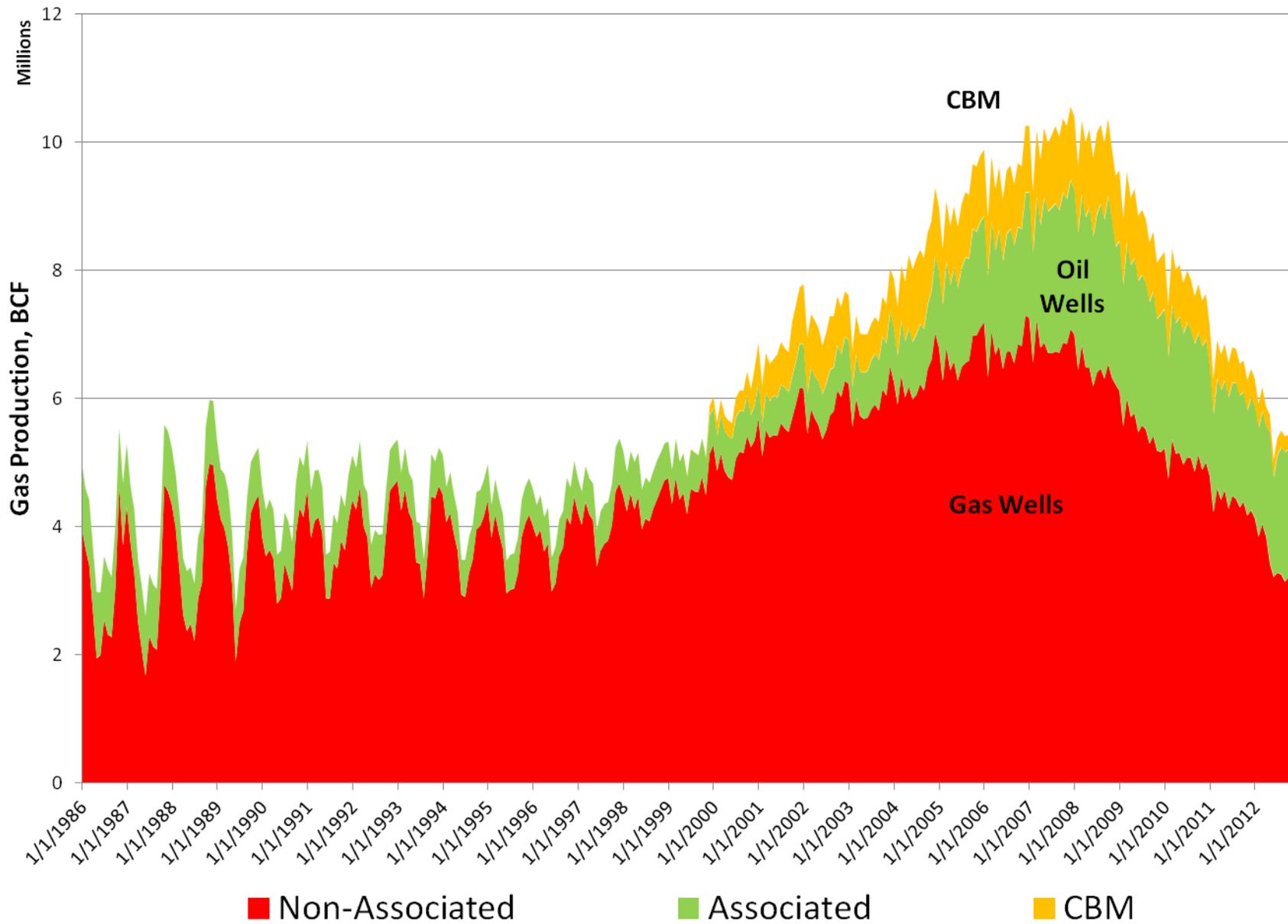
# Montana Oil Production by County, Through March 2013



# Monthly Gas Production by County Through March 2013

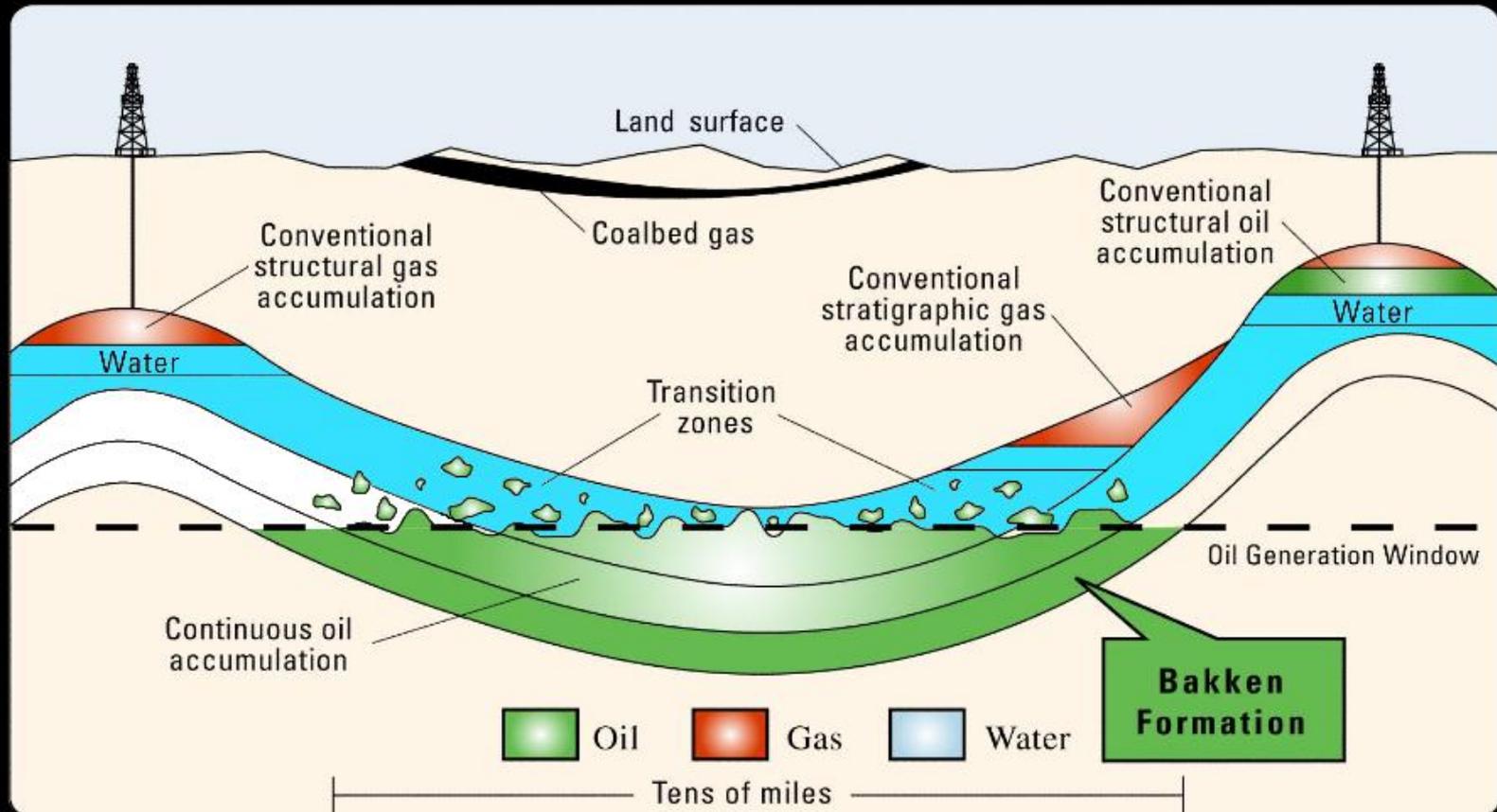


# Montana Gas Production , 1986 through 2012



# Conventional vs Continuous Resources

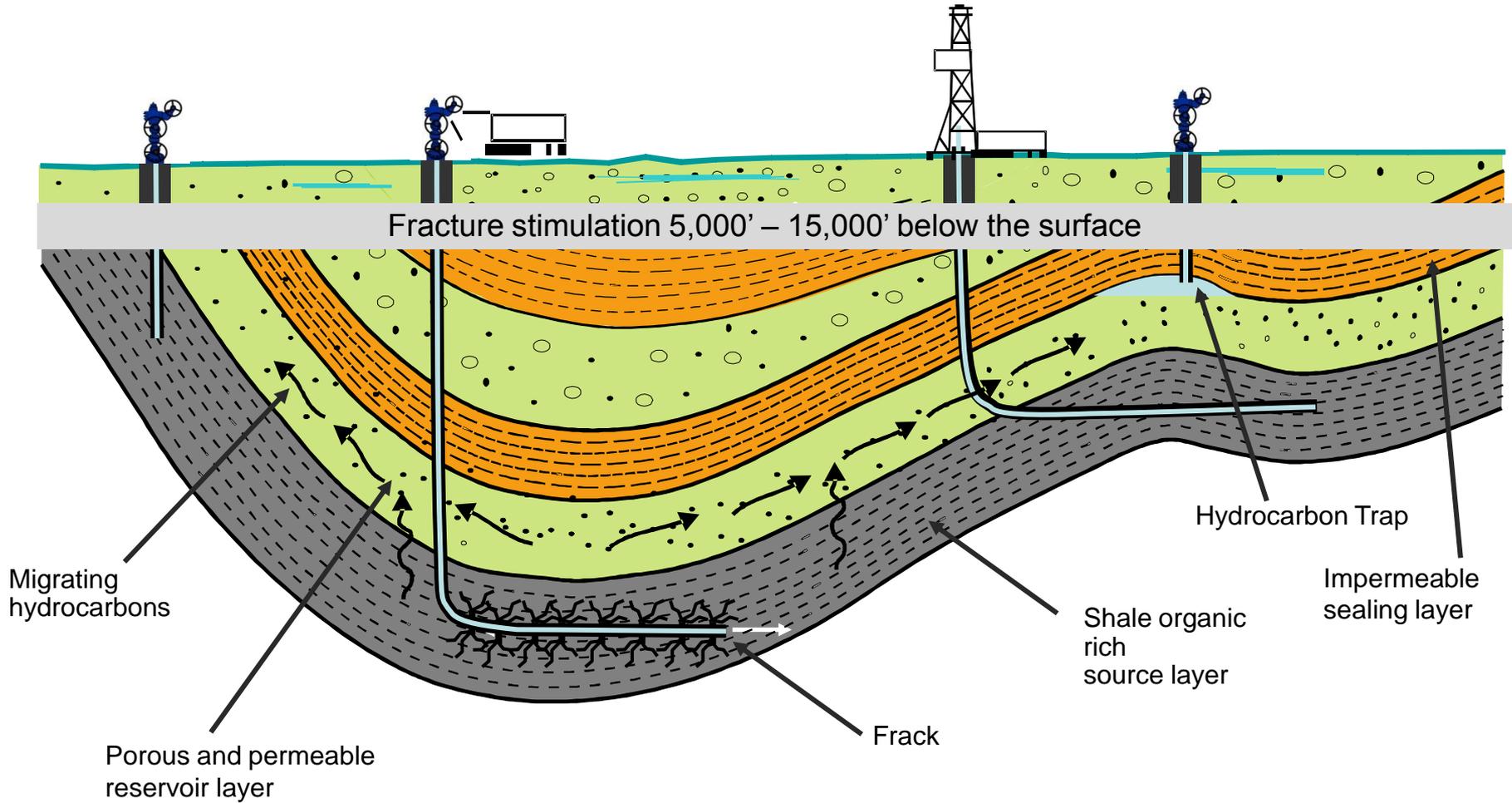
## Continuous Shale Accumulations



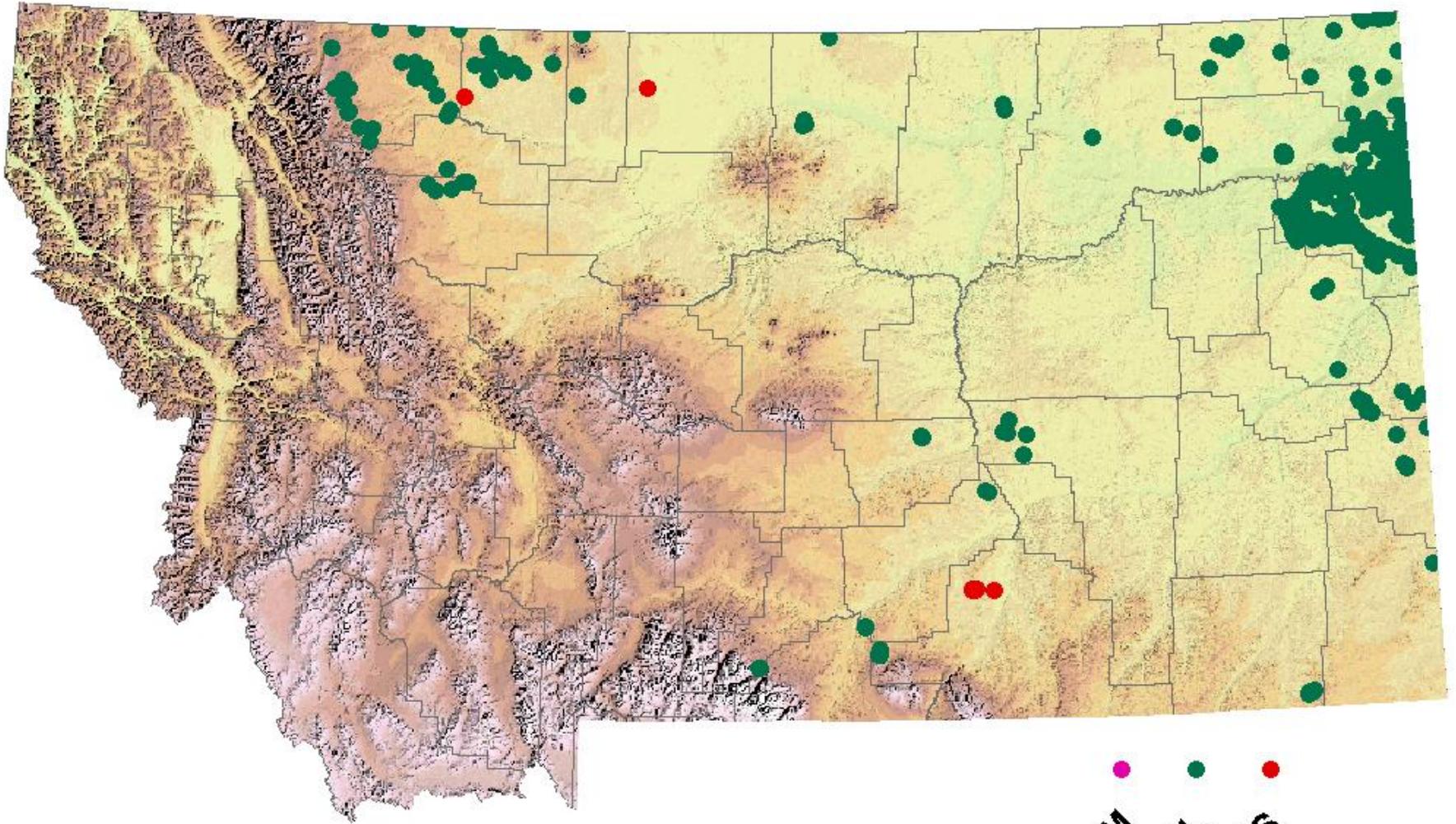
**REQUIREMENT**... the shale is now, or was at sometime in its history, within the oil or gas generation window

# Technology's Role

Why the revolution?

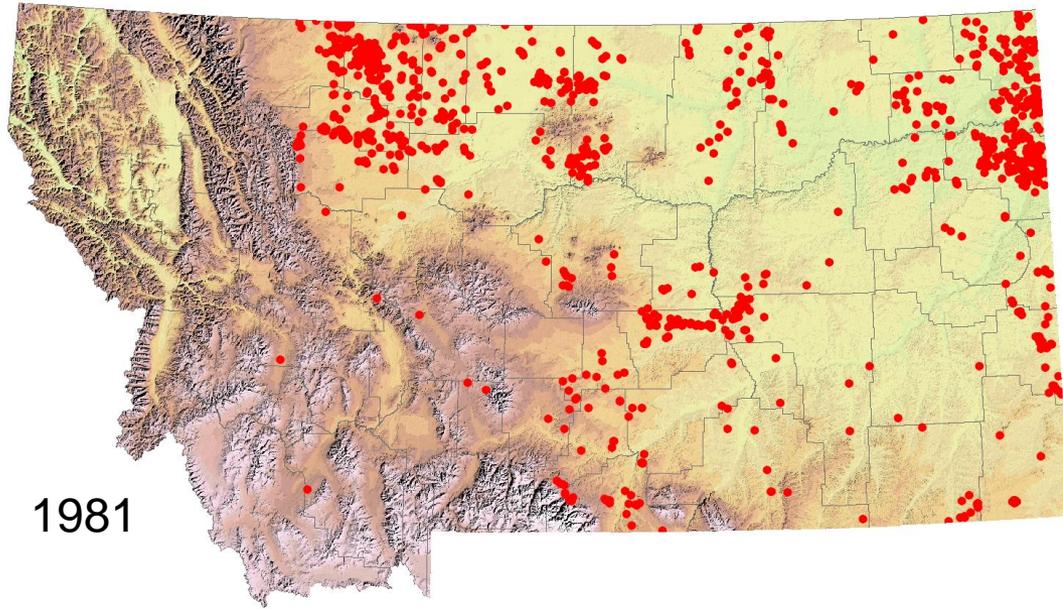


# Permits Issued After January 1, 2012

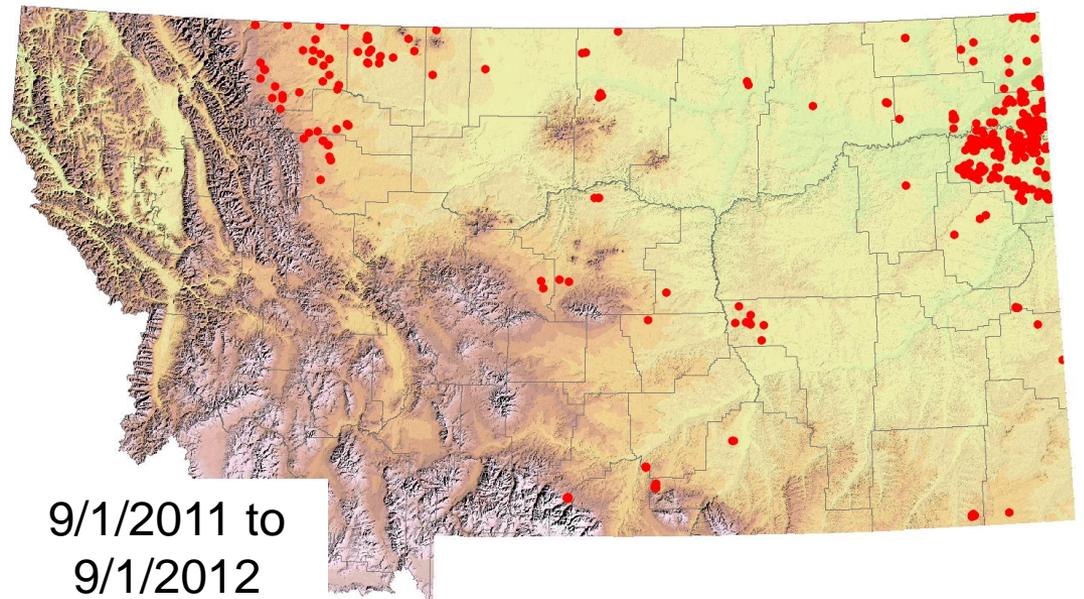


● CBM  
● OIL  
● GAS

# 1981 vs. Current Activity

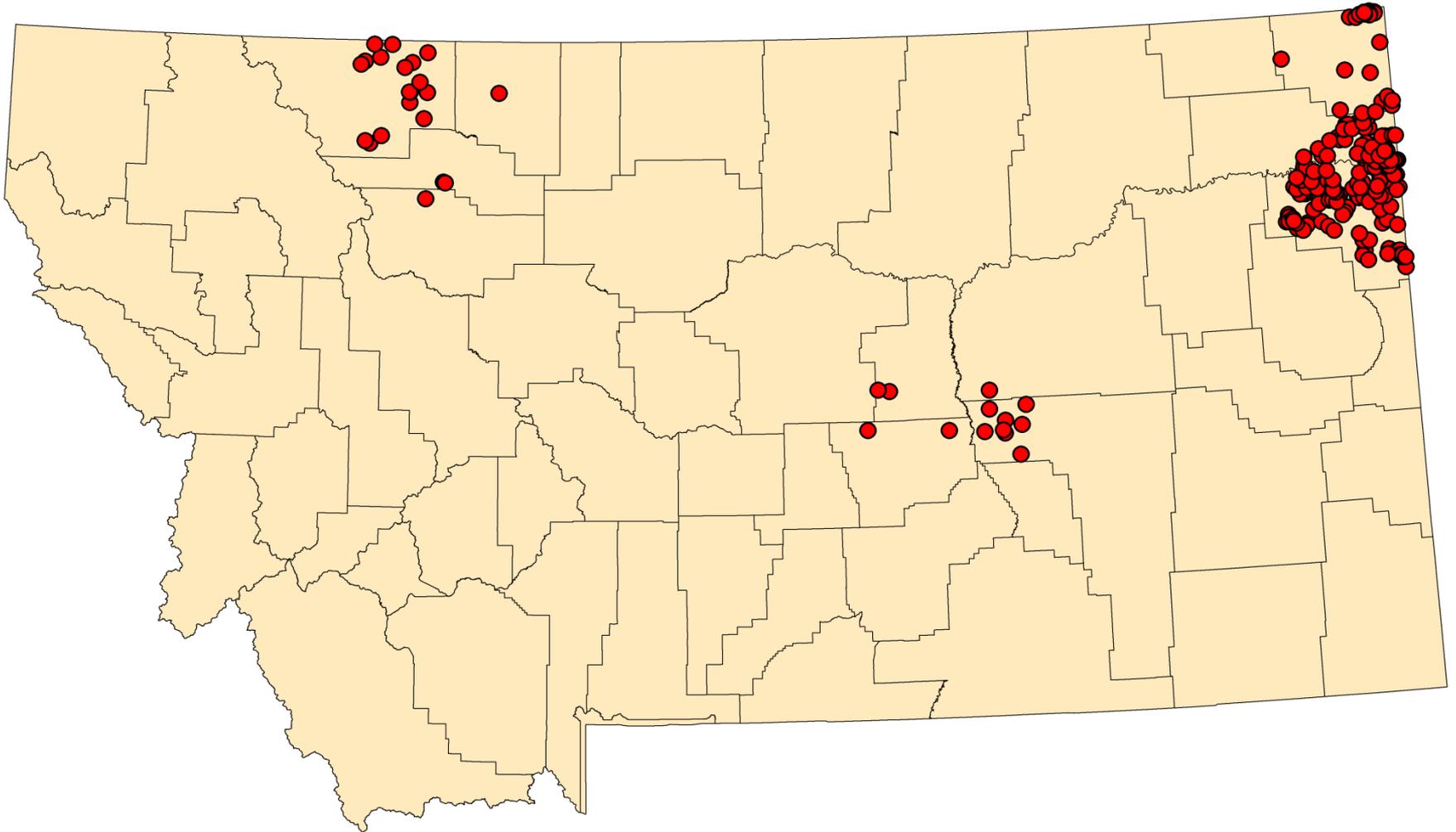


1981



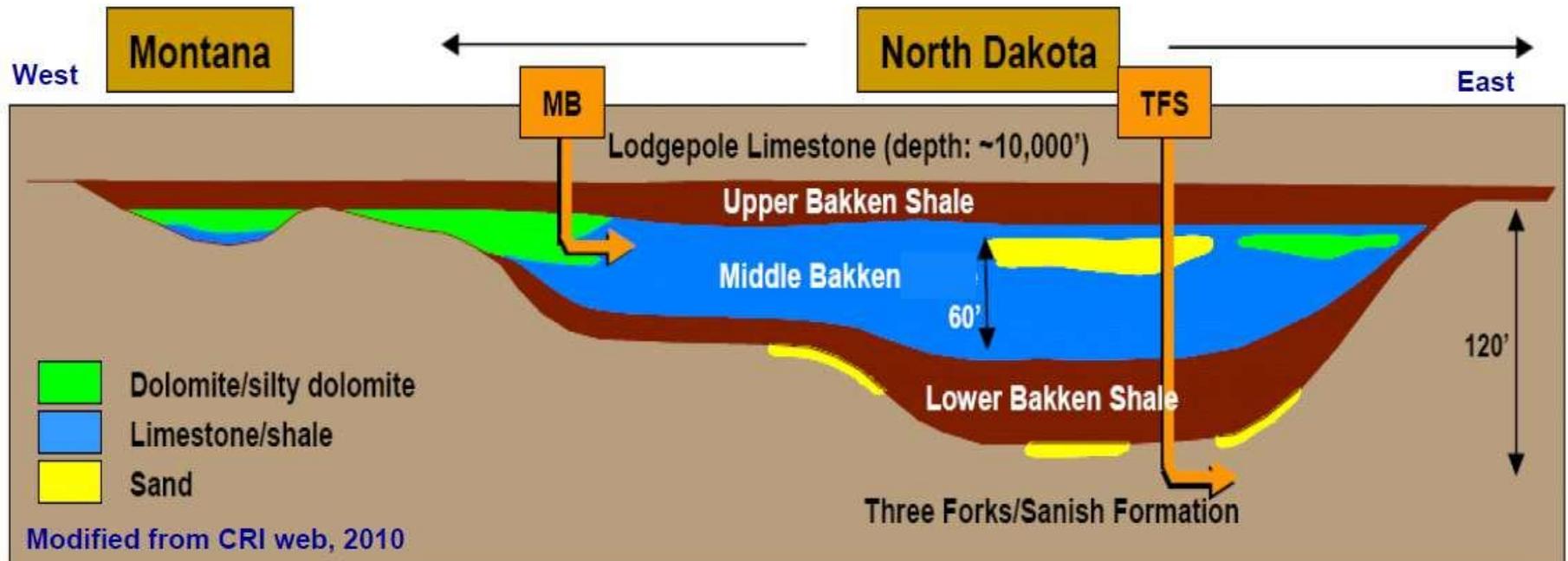
9/1/2011 to  
9/1/2012

# Drilling Permits, Horizontal Wells

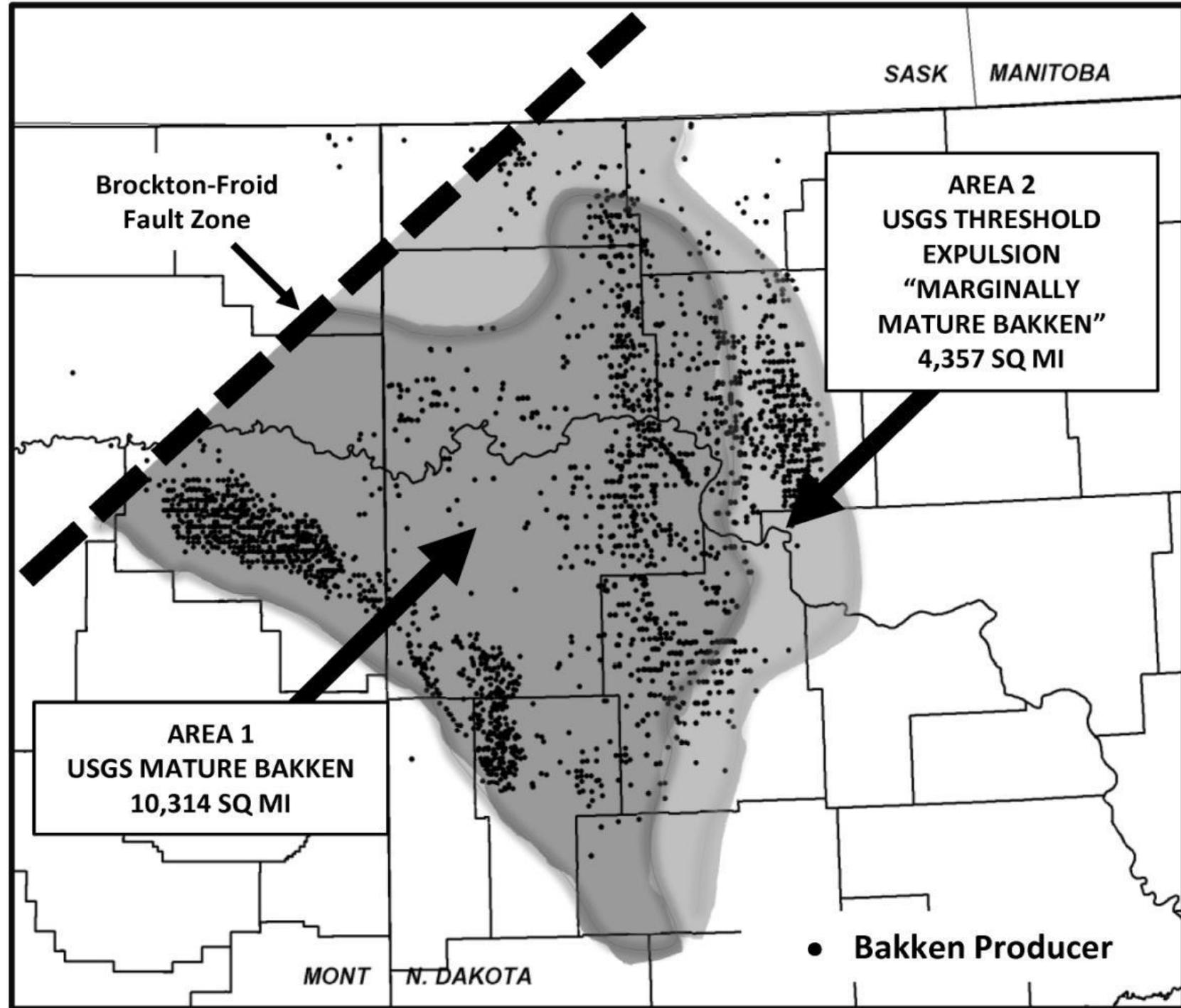


Horizontal Oil Shale Activity

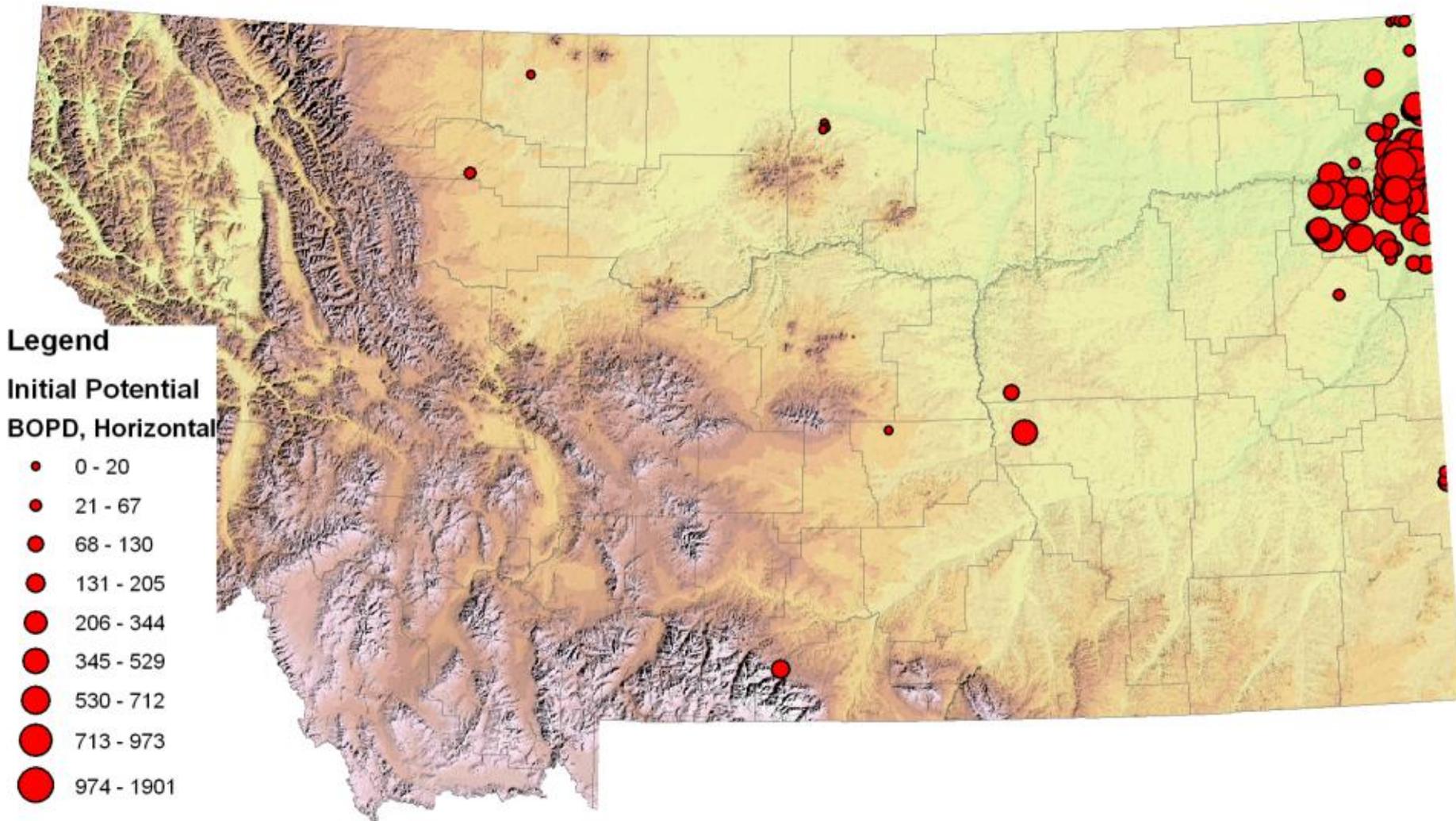
# Middle Bakken / Three Forks Pay Variation



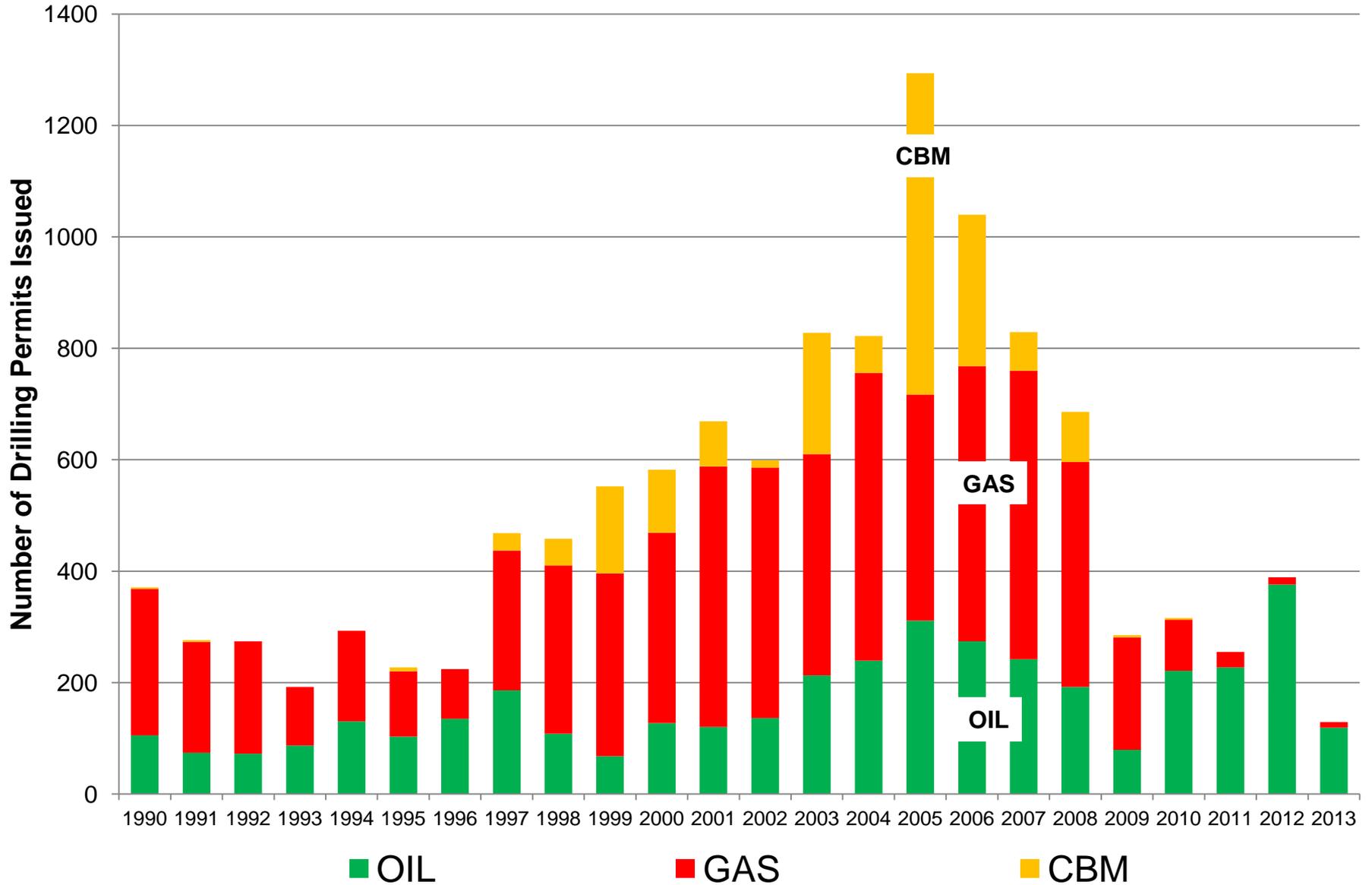
- **Middle Bakken pay not a shale lithology**  
Complex, laterally varying lithology & play types  
Stratigraphic / diagenetic trap drivers
- **Underlying Three Forks 'non-shale' play potential established 2008**  
Also sourced by Bakken shale  
Dual zone development underway



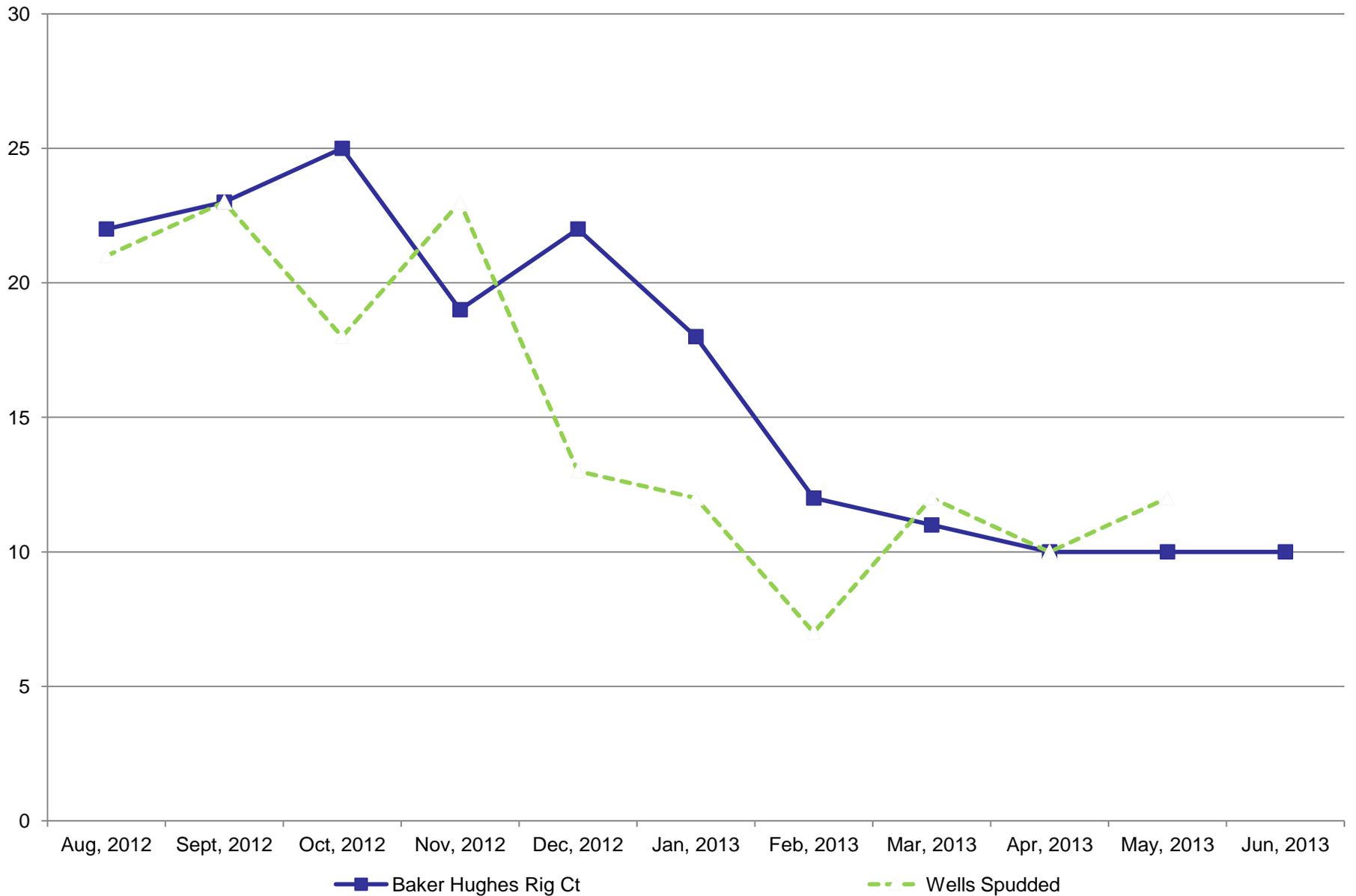
# Reported Initial Potential, All Horizontal Wells Since January 2012



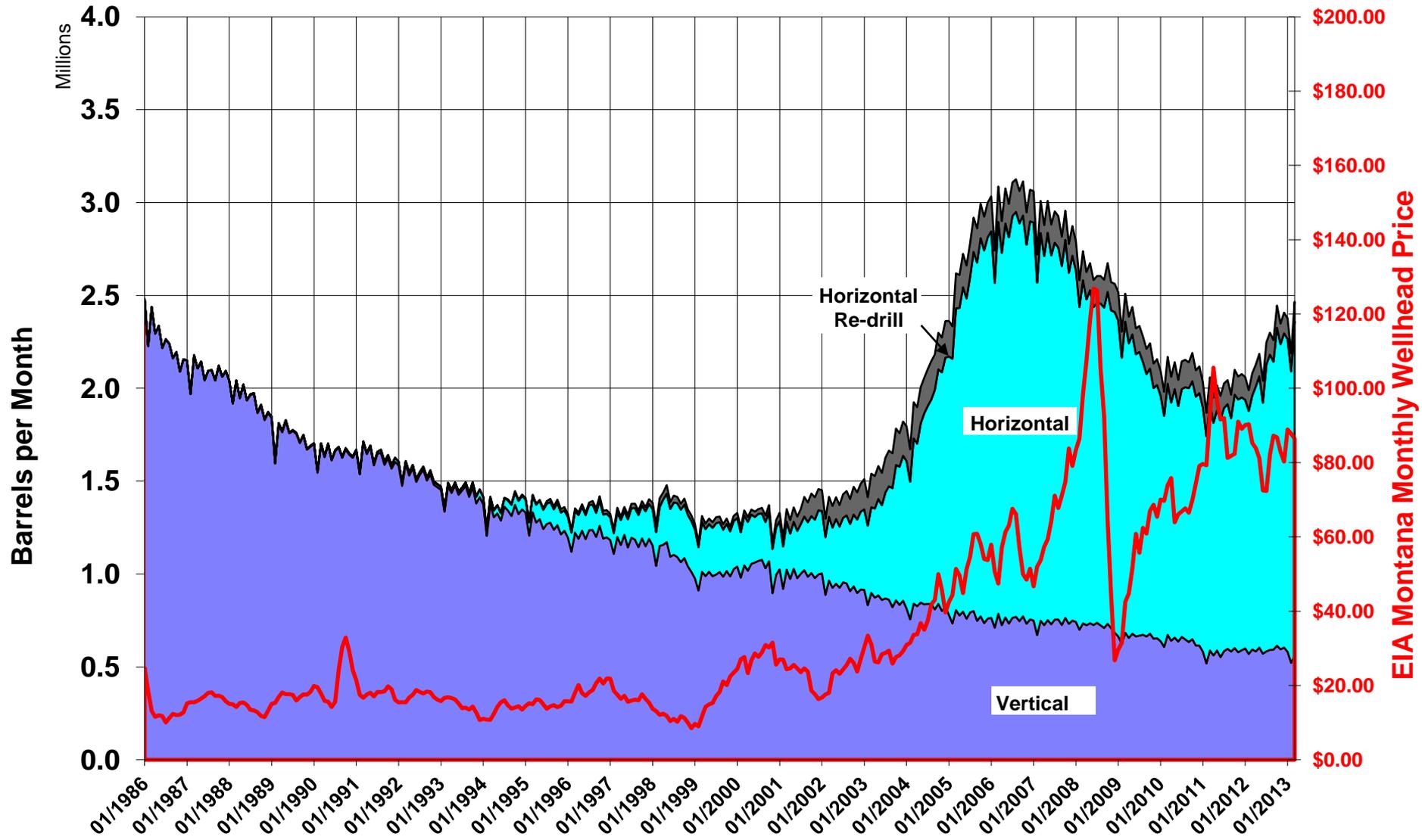
# Drilling Permits



# Industry Rig Count Vs. Wells Spudded



# Monthly Oil Production, Vertical vs. Horizontal Wells January 1986 through March 2013





[www.bogc.dnrc.mt.gov](http://www.bogc.dnrc.mt.gov)